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ABSTRACT

Many school districts are still approaching the energy crisis as though it were a temporary inconvenience. However, school districts that have recognized the gravity of the energy situation have conducted energy audits. Basically, there are two types of audits. The first is a simple walk through each building using a checklist format. The second requires the services of an outside consultant, generally an engineer or architect. This person conducts an indepth examination of the existing facilities to ascertain which, if any, physical modifications are feasible and what the costs and payback periods might be. Along with energy audits, some school districts have instituted unique conservation incentive programs. In Dade County (Florida) individual schools received 80 cents for every dollar they saved by conserving energy. For those school districts that have yet to direct serious attention to energy conservation matters, a composite list of activities currently being used by progressive districts throughout the nation is offered. (Author/MLF)

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# WHAT ARE SCHOOLS DOING TO SAVE ENERGY?

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Although the "energy crisis" has been around for nearly seven years and the National Energy Conservation Policy Act of 1978 is almost two years old, many school districts throughout the state and nation have yet to develop and/or implement a comprehensive energy-conservation program. Given the fact that school districts which save energy also save money, this is truly unfortunate.

Admittedly, most school districts have looked into the problem and taken some appropriate steps. Few, however, have addressed the issue in its totality and set about establishing a long-range energy plan. Many school districts are still approaching the situation as though it were a temporary inconvenience. That is, while some efforts have been made to turn off lights, lower thermostats, and to do some minor insulating, a complete investigation of energy problems has not been accomplished.

## Organization

For those school districts which have recognized the gravity of the energy situation, however, a remarkably similar pattern of action has developed. To begin, Boards of Education have indicated their resolve by establishing a written conservation policy. Superintendents have then appointed district-wide energy conservation committees, consisting of administrators, business managers, teachers, building custodians, and, in some cases, citizen representatives. These in-

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dividuals have subsequently developed long-range goals for the districts, as well as a mechanism for achieving them.

Based on the recommendations of the energy conservation committees, "energy-management teams" have then been created to accomplish the long-range goals. These teams usually include someone designated as an energy manager, selected school district personnel and outside consultants.

Energy Audits

Basically, there are two types of audits which school energy-management teams employ in fulfilling their energy conservation plans: the first is a simple "walk-through" of each building, using a checklist format, and the second is a "verification" review of all previous findings.

During the "walk-through" phase, the walls, windows, floors, ceilings, lighting, ventilators, thermostats, roofs and all mechanical systems are inspected for possible deficiencies. In addition, an energy "history" of each facility is collected. This involves determining the amounts of energy (fuel, electricity and water) consumed, plus their costs over a period of at least three years.

The second phase, the "verification" or "technical assistance" phase, requires the services of an outside consultant. This person, generally an engineer or architect, conducts an in-depth examination of the existing facilities to ascertain which, if any, physical modifications are feasible and what the costs and "payback" periods might be. The payback period is the amount of time in which the cost of renovation or replacement of an item might be expected to result in energy savings and, therefore, financial savings.

Following the technical assistance phase, detailed plans and specifications are developed to accomplish the recommended modifications. Actual implementation involves the construction, retrofitting or other activities necessary to complete the projects decided on during the verification audit. These plans and specifications are produced by established architectural/engineering firms.

Incentives

Along with the efforts just mentioned, other school districts have instituted unique conservation "incentive" programs. One such program is taking place in the Dade County Public Schools (Greater Miami, Florida) with much success.

In the fall of 1977 a memorandum was sent to all school principals, outlining procedures for a new energy conservation project: "In previous years, utility costs were computed at each school location but were paid centrally, and the school had little or no direct contact with this particular cost. Due to the energy shortage and the superintendent's desire to involve the school system in an energy-saving endeavor, each individual school will be held responsible for the expenditures incurred at its location." The goal was to shift responsibility from the central office to the building principals.

The idea was straightforward: principals and teachers were told that for every dollar they saved by conserving energy (gas, oil, electricity and water) 80 cents would be returned to their respective school budgets. And they were also told the funds could be used as they saw fit. Therefore, incentives brought not only freedom to do well (save funds

and use them) but the opportunity to fail and to lose funds from their individual school accounts. If a school used more utility dollars in 1977-1978 than in the previous year, it had to pay for the costs from its school building account. Thus, under this building-level incentive program, the comfortable "protection" of central office support was removed.

It must be stressed here, however, that the Dade County Public Schools introduced this project only after fully reviewing five concerns: 1) the choosing of clear and broadly acceptable goals; 2) assurance that building principals had authority and control over the project aims; 3) promulgation of clear "rules of the game" to govern the way the project would be run; 4) thorough preparation of the staff to insure its understanding of, and readiness for, the experiment; and 5) the use of appropriate incentives to reinforce the expected outcomes.

In summary, the energy conservation incentive project was very successful, returning $735,039.00 (80%) to building budgets. It motivated principals, teachers, custodians and students to conserve resources and encouraged principals to manage their buildings better by making certain that boilers were used only when needed, that lights were always turned off in unused areas, and that all equipment was working efficiently.

Established Procedures

For those school districts which have yet to direct serious attention to energy conservation matters, a composite list of activities currently being used by progressive districts throughout the nation is respectfully offered:

1. Conduct "walk-through" inspection mentioned earlier.
2. Determine both the effectiveness and efficiency of all building mechanical systems.
3. Close blinds or shades during periods of extremely cold or hot weather.
4. Review temperature settings of all thermostats and lower them based on function and learning efficiency.
5. Establish lighting levels which will support specific learning and working tasks.
6. Reduce illumination levels in auditorium, cafeteria, gym, and all well-traveled hallways.
7. Adjust energy control systems for appropriate nighttime and weekend setback.
8. Keep outside air intake mixtures to minimum code levels.
9. Keep all outside air dampers closed when the building is unoccupied.
10. Re-evaluate building requirements for morning warm-up.
11. Set temperature on water heaters for kitchen and washroom use to lower levels.
12. Schedule major portion of custodial activities for daytime or late afternoon operation.
13. Consider the re-structuring of the school day and year.
14. Contract for a comprehensive technical assistance audit by outside professionals.
15. Investigate the feasibility of a building renovation.
16. Consider an energy conservation "incentive" program.

Conclusions

Because today's schools consume large amounts of energy, and consequently pay high energy bills, the term "energy crisis" is no exaggeration to describe the situation currently confronting school districts everywhere. Schools are under pressure to use less electricity, natural gas and heating oil. And schools should indeed be in the vanguard of efforts to reduce the nation's energy consumption.

School districts can achieve significant savings in a surprising number of ways. Some of these methods have to do with inspecting and upgrading facilities regularly, and some with setting and servicing equipment properly. But others depend on changing the wasteful habits that are the products of a time when both energy resources and money were more plentiful. School boards, therefore, must take the lead by authorizing and supporting serious energy conservation planning in their districts.

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